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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and im rove the character of the service rendered to the public.

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TWENTY-FOOT CHANNEL SURVEYS.

General O. M. Poe's report to the secretary of war of operations on the 20-foot channel, says that during February final estimates were in course of preparation on the first four sections. Two sounding crews were at work. Ice soundings were begun February 2, 1895, at the southern end of the improved channel and carried to the northward. The weather was extremely cold and the ice froze level instead of drifting in and forming bridges, and as the current was very swift, it cut the ice from underneath and became too dangerous near the head of the river to work upon. The party then went to the northern end of the dredge work and continued the soundings to the northward and southward. A large boulder with only sixteen feet of water on it was found about 7,000 feet from the south end of the dredged canal. "This was entirely unexpected," says Gen. Poe, "and this single discovery is worth all that the survey has cost." The ice went out on the 24th and further operations ceased. The plotting of soundings was in progress during the entire month. In this month ice hydrography will be continued with plottings. Nothing was done during February on the improvement of the Detroit river, and nothing will be done in March. The balance available is $58,052.

Concerning operations for improving Hay Lake channel, Gen. Poe says that a hydrographic party are at work and took 21,675 soundings. This month a contract for removing portions of a shoal on the upper end of Hay Lake channel and for clearing up shoals near Nine Mile Point will be entered upon. Sounding, drafting and routine work will be continued.

In improving St. Mary's river, Michigan, 346 cubic yards of earth and 55 cubic rods of rock were excavated, all at the east end. The extremely cold weather prevented any field work on erection of gates. This month, work on lower and intermediate gates will be continued. At St. Mary's Falls canal, repairs of lock gates have been completed. This month the repairs to the lock floor and platform will be completed.

DEPARTMENTAL TONNAGE.

Within the next few weeks shipbuilders will have an opportunity to compete for the privilege of constructing two new revenue cutters authorized by the Fifty-third congress, each vessel to cost $175,000. They are to be sister ships, one from the station of Boston, Mass., and the other will make her headquarters at Milwaukee, Wis., for service on Lakes Michigan and Superior.

Plans and specifications are being prepared at the treasury department for these vessels, each of which will be 190 feet long and 32 feet beam. Among the requirements will be the speed test to make at least 19 statute miles an hour, and, the vessels will be schooner-rigged fore and aft. The complement of each boat will be 100 persons, officers and men, and their armament will be half a dozen rapid-fire Hotchkiss guns. In the event of lake shipbuilders getting this contract they will be required to deliver the Boston boat via the St. Lawrence river to her destination, and vice versa for the Milwaukee craft if an eastern firm carries off the plum. In accordance with the plan adopted by the revenue marine service the new boats will be painted white, and the intention is to make them small cruisers, able to cope with anything likely to venture into their vicinity. Repairs which will cost upwards of $5,000 have been authorized to the revenue cutter Andy Johnson, now in service on the lakes, and the work will begin just as soon as the season opens. It is fully thirty years since the Johnson went into commission on the lakes in company with five other vessels of a similar character. Her companions were the W. P. Fessenden, stationed at Detroit; the Salmon P. Chase, John A. Dix, Sherman and Commodore Perry. When these vessels were first built and assigned to the lake stations, they were regarded as gunboats, and were sent not only to guard the customs service but to repel a threatened invasion of the United States from Canada. It was stated at that time that if Great Britain had shown the least disposition to be ugly these young cruisers with their Dahlgren armaments, could have made short work of all the Canadian merchant shipping on the Great Lakes.

LAKE LEVELS.

The present extreme low stage of the water in Lake Ontario is attracting much attention, but it is not an unusual occurence. On February 28, 1895, the water level at the United States engineer gauge in Oswego harbor—(established in 1838 by Mr. J. W. Judson, United States engineer)—was at the zero point and also on March 1st, but not since then. This is extreme low water level, below which the water has never gone since the gauge was established, 57 years ago. Now the water is two or three inches above zero. This zero point is 2⅓ feet below the average lake level of 20 years, and a low season may be expected this year. The water level will rise about the time that navigation opens, but how much no one can now predict.

The low periods of lake levels and the high periods are the results of varying amounts of rainfall and of evaporation over the whole basin of the Great Lakes. When a season of least rainfall chances to coincide with a season of greatest evaporation, the following season shows the effect in an extreme low stage of lake. But the conditions are too complicated over this great area for any calculations to be made. There are various popular superstitions about "every seventh year" and "every fourteenth year" being periods in which to expect low or high water, but these, like other superstitions of this class, are merely ignorant attempts to befog a subject about which it is plain that no predictions can be made. The water in Lake Ontario was as low as it is now in 1846, 1848, 1872 and 1891.

IMPORTANT CUSTOMS DECISION.

The Treasury Department has made public a letter from Acting Secretary Hamlin to a New Brunswick firm relative to the importation of salmon and smelts, which is of interest to Great Lake fishermen, because it involves the question of the importation of fish frozen or packed in ice in a fresh condition. Secretary Hamlin says that salmon, smelt and other fish of a migratory nature, which exist all or a part of the year in fresh water, if caught in fresh water, are considered fresh water fish, and if frozen or packed in ice at the time of importation, are free under the provisions of the Wilson bill. The department has also instructed its special agents relative to fish packed in ice. The department has received a letter from the special agent of the department located at Cincinnati, saying that fresh fish were being imported at Sandusky through from Canadian waters and entered free as "American caught" under the Wilson law. The department decided that fish caught by any vessel registered under the laws of the United States, were considered the products of American fisheries. The department's construction of the "packed in ice," as contained in the Wilson law, is that fresh water fish, which at the time of importation are in fresh condition, if packed in ice, either between layers of chopped ice, or placed around cakes of ice, or packed in barrels or boxes with ice in any shape or form would constitute fish "packed in ice, fresh."

NEWS AROUND THE LAKES.

DETROIT, MICH.

Special Correspondence to The Marine Record.

Captain Philip Young, formerly master of the J. Emory Owen, has retired from active service.

The new patent life boat Rescuer, built by the Detroit Boat Works was launched Tuesday afternoon.

The steam yacht which the Detroit Boat Works is building for Edward Henkel is receiving her boiler.

Officers of the Detroit-Sandusky steamer Frank E. Kirby have been ordered to report for duty April 1.

John Stevenson has been appointed agent of the Union line, with an office at the foot of Randolph street.

Desner & Ritchie, East End Boiler Works, are putting a new furnace in the boiler of the steamer Arundel.

The Detroit Dredging Co., has about finished the work of dredging the channel through the center of Grosse Isle.

The steamer Toledo will receive a new boiler and smoke stack. The steamer Hattie is receiving new decks.

The steamer John F. Eddy will unload her cargo of corn this week at the Grand Trunk Elevator at Port Huron.

Capt. John Mitchell of Cleveland was in Detroit on Saturday. He was on his way home from Chicago and Bay City.

The steamer Raleigh is in the Detroit Dry Dock Co.'s dock, for a survey and repairs. She is to receive considerable new work and recalking all over.

Captain John Robertson, of Marine City, says he expects to have the steamer Unique ready for the Detroit River route on the early opening of navigation.

The Dry-Dock Engine Works has purchased from B. F. Sparr, his rights for the lakes in a patent propeller wheel. It is a wheel of three buckets on a hub of varying diameter.

President William Livingston, of the Lake Carriers' Association, says that there is no disposition on the part of the ship-owners to fight the longshoremen along the lakes, as the Duluth papers are trying to make out.

The steamer City of Detroit is all ready to start for Cleveland when the word is given, but the management think now she will not get away before April 7. The Cleveland and Mackinac are still in the hands of the painters.

Capt. George L. Cottrell will command the new steamer (No. 120) building for C. R. Jones & Co., Cleveland, by the Detroit Dry Dock Co., Capt. H. C. McCallum having resigned his appointment to her in favor of another steamer.

The Fulton Iron and Engine works are converting the low pressure condensing engine of the steamer Toledo into a steeple compound by adding a 17x36 cylinder on top. They are also making a Kendall piston packing 46½ diameter for the steamer Ionia.

Captain Frank Hebner has not yet received his insurance money on the steamer Concord, which burned at Toledo over a year ago. She was owned by Captain Hebner and W. S. Botsford, but the insurance was in Hebner's name. It is expected that an adjustment will soon be effected.

Captain M. W. Humphrey has recovered a verdict for $1,182·32 in the Wayne County Circuit Court against the Eddy Transportation Company, the suit growing out of a dispute over the amount of commission due Capt. Humphrey for the sale of the steamer Eddy and schooner John Shaw.

J. C. Goss & Co., manufacturers of the Air Space Boiler Covering, specially adapted for boilers have just shipped to Alpena two coverings for the boilers of the steamer Enterprise. They are making coverings for the boiler of the steamer Servia, which will be shipped to Chicago, where she is in winter quarters.

George Gurd, a Tilbury, Ontario, timber dealer, has over two million feet of logs on the Lake Erie Railroad, awaiting shipment to Walkersville, whence they will be rafted to Detroit. He has another 1,500,000 feet banked on the Brule, and other drains for rafting, in addition to a large quantity banked on Detroit river.

W. G. Brown has just bought the steamer Carmona, which is to run between Windsor and the Sault in the same line as the Cambria. She was purchased from Smith & Keighley, of Toronto, and will start on the route about June 1. She was formerly the Manitoba, of the Beatty line. Her freight capacity is 400 tons.

The Frontier Iron Works has begun work on the engines to be used in the Conneaut ferry steamers now building at Craig's shipyard, Toledo, for United States & Ontario Transportation Company. They have also shipped two car loads of machinery to Captain James Davidson, to be used in the new boat being built at his yard. The machinery is a duplicate of that used in the steamer Shenandoah.

At Walter H. Oades' shipyard, the schooner Ganges is receiving new stanchions and top sides, the schooner Porter has received new mast heads and had her booms reduced, the Racine Dredging Co.'s No. 2 Dredge, is being rebuilt. Considerable repairs and calking have been done on Carkin, Stickney and Crams large dredges Nos. 14 and 15. General repairs will be done on the Starke Dredging Co. of Milwaukee, No. 4 dredge.

The following is a list of the 1st Battalion of Michigan naval militia: 1st Battalion, M. S. N. B., 142 enrolled, armory at Detroit—Lieut. Comdr. Gilbert Wilkes, commanding; Ensign Truman H. Newberry, Signal Officer; P. Asst. Surg. Delos Parker, Batt. Surgeon. 1st Division—Lieut. Cyrus E. Lothrop, commanding division; Lieut. (J. G.) H. K. Jones, Ensign Frederick D. Standish. 3d Division—Lieut. W. Howie Muir, commanding division; Lieut. (J. G.) Henry H. Sanger, Ensign Sidney T. Miller.

John C. Shaw, the well-known marine attorney, addressed the Detroit Lodge of the Ship Masters' Association, last Wednesday evening, explaining the meaning and effect of the new rules for lake navigation embodied in the White bill. More than 200 persons were present, including, beside the captains, mates, pilots, and engineers, all of whom listened with great interest. As Mr. Shaw proceeded with his explanations he was frequently interrupted with questions from the audience, which were promptly answered. An effort is being made to get a supply of copies of the act, only one or two copies having reached this port.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

The steamer City of Chicago and tug Frank Edward are being thoroughly overhauled and searched up at St. Joseph.

There is already some activity shown among the craft lying in the river. The steamer Robert L. Fryer, Capt. Peterson, which ran on a ledge near Port Huron last fall and damaged her keel is being repaired. The City of Berlin has had repairs made. The passenger steamer Peerless is receiving a new boiler.

Burger & Burger's shipyard at Manitowoc, has given steady employment to 120 men during the winter. Large repairs are being made on the schooner Hattie Hutt. Considerable repair work is being done on the Goodrich line steamer Muskegon The Virginia engines are also being thoroughly overhauled.

Chicago grain freights rule steady at 1⅜ cents for wheat and 1¼ cents on corn to Buffalo. During last week the stocks in regular elevators decreased 30,000 bushels of wheat and 153,000 bushels of corn, but increased 20,000 bushels of oats. Stocks of wheat afloat increased 362,000 bushels, and of corn 262,000 bushels, but oats were unchanged. The aggregate stock ashore and afloat is as follows: Wheat, 26,567,000 bushels; corn, 7,108,000 bushels; oats, 1,258,000 bushels; private elevator stocks decreased 105,000 bushels of wheat and 49,000 bushels of oats, but increased 24,000 bushels of corn. The stocks are: Wheat, 3,792,000 bushels; corn, 995,000 bushels; oats, 622,000 bnshels. Among recent charters were the Iron Duke, 55,000 bushels wheat; C. F. Bielman, 100,000 bushels wheat; steamer Lansing and schooner Olive Jeanette for 150,000 bushels of wheat, all to Buffalo, at 1⅜ cents; steamer D. C. Whitney, 65,000 bushels corn to Buffalo, 1¼ cents; Vail, Baltic, 110,000 bushels corn to Kingston, at 2¾ cents.

CLEVELAND, O.

Special Correspondence to The Marine Record.

Capt. John Mitchell was in Buffalo this week.

Capt. Thomas Wilson is attending to some business in Milwaukee.

Cleveland parties have purchased the schooner B. B. Icsman, from Homegardner, of Sandusky.

The Northern Steamship Co. expect to open up their freight business April 8, if the ice is out sufficiently by that time.

General Manager Newman expects to start the Cleveland and Buffalo boats as soon after the 1st of April as the ice will allow.

The new steel steamer building at F. W. Wheeler's yard, in Bay City, for Capt. John Mitchell and others, is to be called the J. J. McWilliams.

The Port Clinton Steamboat Company has been incorporated under the Ohio laws, to do towing, and to transport freight and passengers on Lake Erie.

The little steamer and sandsucker S. Neff has been lying in the river for a week, loaded with pig iron for Lorain, but unable to make the trip on account of the ice.

The interest of C. B. Case, Norwalk, O., in the steamer Keystone and schooner Masten has been disposed of this week. Crosthwaite & Co., of Buffalo, have purchased a portion of the schooner Norris.

Work on the steamship North Land, at the Globe shipyard, is making fine progress, and she is expected to be out early in May. It is arranged that sometime during that month she shall be taken to Detroit, Mackinaw Island, Milwaukee and Chicago, where public receptions will be given.

A verdict was rendered for the defendants in Common Pleas Court this week, in the damage suit of Mrs. Eliza Mulvaney, wife of Neil Mulvaney, who was killed in the season of 1893 by a tow post breaking on the steamer Genoa, against the Richardson Transportation Company, owners of the boat.

The Commercial Transit Co., of Willoughby township, Lake county, has been incorporated by B. L. Pennington, O. G. Kent, B. F. Powers, C. B. Lockwood, and William Taylor. It also has authority to purchase, lease, hold and sell real estate for terminal facilities and for the purpose of doing said business. The capital stock is $268,000..

Captain James Farasey, died on Thursday last at his home, No. 288, Washington street, aged seventy-nine years. He was for many years a prominent vessel man. Two of his sons are in the forwarding business, in the firm of Farrsey & Marron, and one I believe is the part owner of a large boiler works.

A meeting of Cleveland & Buffalo line directors was held in the offices of President Bradley last Tuesday. It is expected that the contract for the company's new passenger steamer will be awarded in about a week. This company will begin running their boats to Buffalo just as soon as the ice will permit.

One of the most interesting discourses delivered before the Shipmaster's Association this winter, was given by Mr. Robert Logan, on Wednesday afternoon, before a large and influential audience. Mr. Logan, in a carefully prepared paper, dealt with the make and quality of steel used for shipbuilding purposes and exhibited a number of samples of metal now being used in shipbuilding which had undergone the most severe tests. Orestes C. Pinney, Esq., lawyer and proctor in admiralty, closed the session with an extempore address on "Good Citizenship." The thanks of the association was tendered to both gentlemen for their highly instructive oratory.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

Manager French, of the Union line, denies that he has chartered two of the Crescent line steamers to the Clover Leaf.

Secretary C. H. Keep will not begin to enroll the tonnage for next season's membership in the Lake Carriers' Association until about April 1.

A number of prominent attorneys and marnie men are attending the trial of the case growing out of the sinking of the canal boat by the Owego, October 2, 1893.

As a rule the vessels wintering cargoes at Buffalo are more or less on the bottom, owing to changes in the water level resulting from storms. Several of them are leaking, and a few corn cargoes are damaged.

It is expected that the steel steamer now on the stocks at Cleveland for Capt. M. M. Drake and others will be taken into the Lackawanna Line. This may shut out one or two of the steamers which ran under charter to this line last season.

The Wabash Line steamer Russell Sage has received new wale strakes, general repairs and calking from the light draft water mark up, besides a new smoke stack

and large repairs to her boiler. The J. C. Gault will receive similar repairs.

Vessel owners, lumber dealers and stevedores held a meeting last Saturday at the Merchant's Exchange, but nothing important was accomplished in the way of fixing handling rates for next season, for which purpose the meeting had been called. Another meeting may be held this week.

Manager Conlon, of the whaleback steamer Christopher Columbus, and the steamer Columbia has offered the city council $3,000 for the exclusive use of a dock near the foot of Main street. While nothing has been closed, it will not be a great surprise now if the big steamer comes here this winter.

The new Forwarder's Association, over the formation of which so many weeks were spent, is thought to have gone to pieces. There was a great deal of disatisfaction over the award of divisions, and when a meeting was held Tuesday for the purpose of regulating rates, a motion prevailed to lay the entire matter over for one year.

The winter grain cargoes are coming out as bad as usual. Four or five of the vessels which have been nearest the elevators have been relieved of their cargoes and have kept the wet grain men busy. The Missoula had 5,535 bushels wet, which was sold for 25 cents per bushel. The Gladstone had about 1,300 bushels wet, and the City of Genoa has about 1,200 bushels that is more or less damaged by water, but not so badly but it will bring a fair price. The City of Naples had no grain wet, but was about 80 bushels short. The steamer H. A. Tuttle is to discharge her cargo this week. It is said to be all right.

PORT HURON, MICH.

Special Correspondence to The Marine Record.

Capt. Bennett will sail the schooner Hunter Savidge this season.

Navigation between Port Huron and Alpena opened last year on March 10.

Capt. Thos. Fish has given his tug a thorough rebuild during the winter.

Capt. Thomas Currie has laid out about $1,000 in repairs on the barge Grandy this winter.

The Jenks Ship Building Co., have begun work with 30 men on a new tug for Capt. B. B. Inman, of Duluth.

The Phœnix Iron Works report business better than last year. They are giving steady employment to 75 men.

Capt. Ed. Hendricks has bought a one-fourth interest in the schooner John Wesley for $700, and will sail her this season.

Capt. H. J. Slyfield says: "I do not anticipate a good season for vessel men. I predict that many owners of floating property will lose money.

Capt. Andrew Bonnah, who rescued the Pabst last fall when he was in command of the tug Boynton, has met his reward in being appointed to the command of the Pabst.

The steamer Mary is again laid up on account of the quantities of ice in the river. Before going into commission again she will receive a new wheel, which is now on its way from Buffalo.

Capt. C. J. Holmes, of this city, who sails the steamer Wallula, of the Wilson line, is the youngest master on the lakes. He was married early in the winter, and is a great favorite in Port Huron.

Port Huron Lodge of the Shipmasters' Association, will have their next pedro party at their rooms next Thursday evening. All members and honorary members with their ladies are invited.

Capt. John Robertson, of Marine City, says: "We expect to have the Unique ready for the river route soon. She will make two trips to Detroit daily. The boat will arrive and depart from the dock at the foot of Court street, and will also touch at the street car dock.

Capt. D. P. Sullivan has been appointed master of the schooner Melvina S. Bacon, which is loaded at Chicago with 60,000 bushels of corn. The steamer Belle Cross is receiving a new compound engine and a new boiler. Capt. John Cornwall will sail her.

Robert McMann, who has been in the employ of Randal Kenny, grocer, for several years past, is about to open a grocery and marine supply store for himself, on Front street. Mr. McMann has hosts of friends following occupations afloat and ashore, and will be certain to do a large business from the start.

President George Uhler, of the Marine Engineers' Benevolent Association, addressed a meeting of the Huronia Lodge a few evenings ago. He addressed an open meeting of engineers on subjects of vital importance to the order, after which the lodge went into executive session. Mr. Uhler's home is in Philadelphia.

St. Clair River is full of ice up to Stony Island, and people are crossing on foot at St. Clair. From present appearance the opening of navigation will be very late. The ice, Monday morning, was running down the river at a moderate speed. Advices from Sand Beach state that the west winds have made no change on the ice in that vicinity.

DULUTH AND SUPERIOR.

Special Correspondence to The Marine Record.

Work is about to be commenced on the construction of the Omaha's dock at Allouez Bay. The company will not let a contract as it will construct the dock by day labor. A crew of men and some pile drivers will be started to work the first of April.

A. Mangold has opened a marine shipping office at Sault Ste. Marie. He has made arrangements to handle the output of the saw mills of John Torrent, C. E. Ainsworth, the Hall & Munson Co., and Chesbrough Bros. this season. He is also trying to form unions of lumber handlers and sailors.

The Chequamegon Bay lumbermen and the eastern buyers have agreed upon a system of inspection. The inspectors chosen are: Wiggins & Swan, J. E. Irvine, Davis & Comstock, C. H. Bradley, and C. & F. S. Strubble. The grades of lumber will be the same as those in Duluth, Menominee, Manistee and other large shipping ports.

The S. K. Martin Lumber Co., of Chicago, is the purchaser in the largest lumber deal consummated in northern Wisconsin this season. The company has purchased 11,000,000 feet of lumber of the Mynes Lumber Co. It will be manufactured this season at Orienta. S. K. Martin was at Ashland for several days making final arrangements for the deal. The consideration was $110,000.

The Northern Pacific has made its first move towards establishing at South Superior vast terminal yards for the handling and distributing of all its head of the lakes business. The plan is similar to that of the Omaha road at Itasca. To that end the Northern Pacific has its eyes on the malleable iron works plant and will use it as a repair shop. The project is a vast one and means much to the south end.

The Peyton, Kimball & Barber Co. will do considerable dredging on its own account the coming season, and has made a contract with Williams, Upham & Dougherty to do the work. The dredging will be done at the extreme end of Connor's Point, along the dock line where the lumber company is building a dock 1,000 feet in length, running from the street car track to the junction of the dock line in Howard's Pocket.

Capt. C. S. Barker is enthusiastic over the passage of the Austin bill, regulating the taxation of water craft according to age and tonnage. He says: "It is the best thing for Superior and the state of Wisconsin that ever happened. All the tugs and vessels at the head of the lake will be taxed at Superior and the city will probably get a couple of thousand dollars on the whole from taxation where it didn't get anything before. The state of Wisconsin will thus get lots of money where heretofore it hasn't got any, as most of the fleets were taxed elsewhere on account of excessive rates."

TORONTO.

Special Correspondence to The Marine Record.

Judge MacDougal has just rendered judgment in favor of Capt. Symes, former master of the steamer City of Windsor, against that boat for $1,326 and costs. That was the sum for which Capt. Symes had brought suit, alleging breach of contract in throwing him out of employment during the season, and repudiation of certain bills which he had contracted in good faith, and while acting as the agent of the owners of the boat. Judge MacDougal condemned the vessel to be sold unless the amount is paid within thirty days. The ruling was that a master's disbursements and liabilities incurred in a home port constituted a lien against the vessel, the owner being domiciled in Ontario, but not easily accessible by mail or telegraph.

Capt. Robert A. Hamilton died at Hamilton a few days ago, in his 73d year. He came from Glasgow in 1854, and sailed many boats on the ocean and lakes. He leaves a widow, son and daughter.

TOLEDO.

Special Correspondence to The Marine Record.

A new grain elevator is to be erected here this spring.

A few days ago the wheel of the tug Schenck pickel up the mooring chain of the steamer Gettysburg, and the services of a diver were required to work her loose.

The schooners Itasca, Penokee, M. Butman, and A. A. Carpenter will soon load coal, although it is said their charters have not yet been closed.

SANDUSKY.

Special Correspondence to The Marine Record.

The north winds have carried the ice over to this side of the lake, and the water is filled with ice as far out as the eye can reach.

The tug John E. Monk, engaged in gill net fishing, broke her stern bearings last Thursday morning. She was laid up several days for repairs.

The tug Peerless is being fitted out and will probably be in commission by the latter part of the week.

The American Eagle, which broke her rudder while working through the ice on the Islands route, has been repaired, and is on the route again.

MACKINAW CITY, MICH.

Special Correspondence to The Marine Record.

Submarine diver Dodd, of St. Ignace, has been trying to locate the wreck of the steamer Barnum, which sank a year ago off this port. He was unable to find her owing to the thickness of the ice, but he will try again when the weather moderates.

Cheboygan people are agitating the matter of an ice crushing ferry boat between their port and Mackinaw.

Col. Lydecker's survey of the harbor of Cheboygan has been completed, and he will begin the preparation of a project for a channel of eighteen feet, with estimate of cost.

The State Legislature has authorized the municipality to build a public dock.

Captain Fred Ryerse, of St. Ignace, will command the big Sault tug Samson this season. The steamer City of Grand Rapids will make trips between this port and Traverse City this year. She is being completely overhauled, and will be commanded by Captain O. E. Wilber.

LITERARY NOTES.

The Shipping World Book and Port Directory for 1895, edited by Major Jones, M. P.: This is the ninth issue of this port directory of the world, showing the tariff of all nations and an epitome of information on matters maritime and commercial. Improvements have been made and new matter added since the last annual edition. The present volume contains the tariff of all nations, and of the colonies, completely revised up to December 15th; a complete port and harbor directory of the British Isles and a directory of all the principal ports of the world, arranged in alphabetical order, giving the latest particulars gathered from official sources, of the accommodation, charges, tides, trades, pilotage and towage; with necessary information required by all who may be interested in shipping matters. The book also contains a great variety of other very useful matter in connection therewith including the board of trade rules and regulations, cattle trade order, coaling stations, table of consular fees, documents required for clearing ships, engineering notes, foreign moneys, weights and measures, light-houses, measurements of ships, Suez Canal and Petroleum regulations, valuable scientific information, etc., to the whole of which is added a copious index, making it very easy of references. It seems a question if 918 pages of any 8 x 5 inch book could contain more valuable information and data than is contained in The Shipping World Year Book for 1895, issued from Effingham House, Arundel street, Strand, London.

THE RESULT.

We reproduce from *Shipping* London an illustration this week entitled "The Result." We are pleased to leave whatever inference may be drawn therefrom to the intelligence of our readers.

GRAIN INSPECTORS.

The Buffalo Merchants' Exchange has reappointed Wm. Thurstone as secretary, Junius S. Smith weighmaster, and the usual committees. The new inspection committee is composed of Jas. H. Rodebaugh, Thomas Spaven, Chas. H. Gibson, George Watkins, John Smith, Henry D. Waters and Francis J. Henry; the grain committee is composed of George H. Wolcott, Daniel E. Newhall, Robert H. Sumner, Horace J. Harvey, Warren F. Chandler, Stephen M. Ratcliffe, Jr., and Geo. C. McDonald. Secretary Thurstone has been in office over thirty years.

SUPERINTENDENT 11TH L. S. DISTRICT.

Capt. Nathaniel Robbins is superintendent of the Eleventh Life-Saving District, embracing all of the stations on Lake Michigan. He is also a disbursing officer and upwards of $150,000 passes through his hands each year, besides accomplishing a large amount of clerical work.

Ten years ago Hon. Thomas W. Ferry, then United States senator, knowing well the fitness of the man, urged, at Washington, the appointment of Capt. Robbins as superintendent of the Eleventh Life-Saving District, and he has served faithfully ever since.

Capt. Robbins is a representatve Cape Cod sailor, a native of Harwich, a village on the sand, with the ocean but two or three miles distant on either side. A Cape Cod boy could not go far outside his mother's yard without dipping his toes in ocean brine. The choice was a narrow strip of sand on the wide sea, and they naturally took to the water.

Amphibious almost from their birth, always trustworthy, trained to do their duty after the good fashion of the puritans; brave and true, their lives kept clean because their hearts ever turned to the one-story brown house on the Cape, where wives and children and parents lovingly waited their return—such are those sailors; known on every sea. The wives they left behind, the women of Cape Cod, trained to self-reliance by the long absence of their husbands on distant voyages, were noble women whose peculiar experiences brought trials and rejoicings; who knew what plain living and high thinking meant.

One of them put the story of their lives in a few words. Some one spoke to her of the trials of these separations, and she replied: "Yes, the outgoing of our husbands is trying, but the home-comings are so blessed and restful."

Nathaniel Robbins, born 65 years ago, went from his home on the Cape on a fishing smack when but 11 years old, worked his way to a captain's position and for 15 years sailed to the West Indies and to South America. In 1856 he sailed from New York to the St. Lawrence, and up the river to the lakes, the schooner he commanded loaded by her owner with machinery and stores for a large saw mill on Lake Michigan. Two or three vessels had gone out from the lakes to the ocean, but his was the first to enter from ocean to lake. At Mackinaw a pilot was hired, but a storm drove them toward the Michigan coast, and in the night they saw a harbor light and Capt. Robbins said to the pilot: "That's St. Joseph." The reply was: "No." And they sailed on and were driven onto the beach a few miles below, ship and cargo wrecked but the crew safe. He had never been wrecked, and his fifteen years of watching sea and shore on the Atlantic, and his careful study of maps and charts led him to know better than the pilot, whose guidance or lack of it led to the casualty.

His young wife, with her babe less than two years old, left the Harwick home and met him at Benton Harbor a year later, and for some 25 years he sailed on the lakes and was in business at Benton Harbor and elsewhere, until fitly chosen to fill the responsible place he now occupies.

A FRENCH CANADIAN'S EPISTLE.

The following has been forwarded us presumably for publication and is the text of a letter received by Capt. Welcome, of Buffalo, last week. Capt. Welcome was first officer on the North West last year and will be on either the North West or the North Land this year. The letter was signed "Peter La Champaign, Algonac, Mich.," but there are those who believe that Capt. Geo. Tebo had a hand in it. The letter twists the personal pronoun just as the French-Canadians do in talking. With them a female is "he" and a male is "she." All the other distinguishing traits of the dialect are there, too, the whole is a remarkable example of the modesty that is such a characteristic trait of those hardy and prolific dwellers of lumber woods.

The letter will repay careful perusal. This is just as it is written:

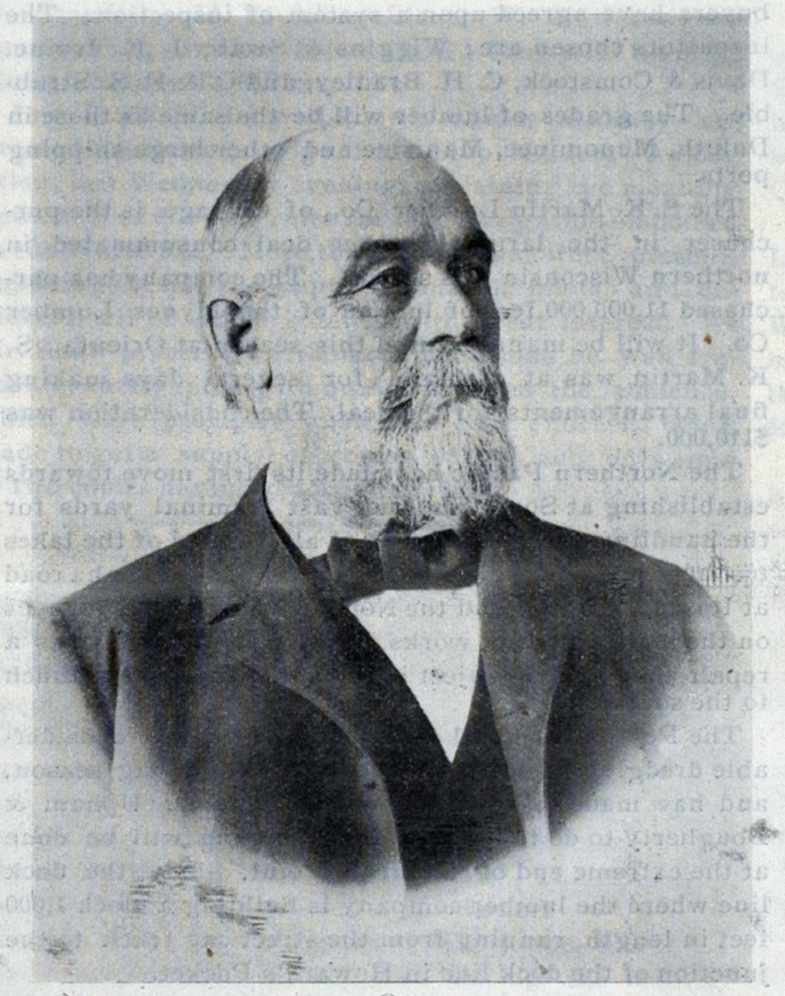
ALGNAK Feb 21 1885

Capt. Welcome Dear Sur i hope you go excuse me fe i go rite on you cose i hant got much quant on you. but the rison what i rite on you for is dis you no i got won wimens an i go ax you if you can give him a job to go cook on you bote i mete Paul Socia de odder day and she tole me you was gone to sale big bote dis sumer an she say to me like dat you rite to Capt Welcom she live on buflo and you ax him fi es got his cook and fi he hant got it i bet you to mushrat she give it a job Wet i tole Paul i go rite on you i hant much educashun i cant rede big book and make big prech but same tam i kin rite on you wat i want. Now Capten dis wimens wit i got he is a good wan he bin cook in de lumber wood tre fore fiv year an al dem mans in de lumber wood she say he is a good wan ond he hant belong on no unun Paul she say dat is good wan on his faver and she say i kin go on de bote to an ack lik deck han on same tam. now Capten i go ax you under faver you no i got fore children one of it is a girl an he can help his mudder a good dels dis gerl wat i got he got terchene old an de nex wan she got hate old and de tird won he go fore old one den i got udder wan he got no old tol he jus com las nite, but wen he git more old like de oder wans he can help do old man to.

now Captin de favor wat i go ax on you is dis kin i fech al my family on de bote fi i kin i got chanc to rent my plas cos Jule Paquet she tole me fi i go on de bote an take al of it wich me she go giv me hate doler a mont for my plas and Jule hes hones man you no som mans wen you trus her dats los for you but ant so in Jule. now Capten i hope you gone giv me al dem favor wat i ax on you. i no cool be glad wen we al git on de bote.

Now captin i hant ax you wat you gone pay cos Paul she tole me wen we hant belong on no unun we kin ax al we like so i gon trus on you for dat.

by gosh i was com nere forget somting i mete my brudder law dis morning an she say to me you go rite on Capin Welcom an i say yes an she say to me to ax



NATHANIEL ROBBINS, SUPT. 11TH L. S. DIST.

you fi you wil giv him job to go henginer on yoor bote mabe you haut got no quant on him wel i kin tole you she was good wan she ben run trash masheu for tre year an she hant kil no body yet al de mans on Algnack talk good on her an she tole me to tel you she hant belong to no unun to now captin fi you want tak my brudder law for henginer you kin rit on him dis way

Constant Pardee
Swan Creek
Michigan Stat

she wil git it quick cos she go on de pos ofice evry day cos al dem clerk in de pos ofice on Swan Creek no her.

now captin i go ax you agin to giv me al dem faver wat i ax on you an fi you do i kin com an sine contrck for de al of it. wel i tink i go stop rite is time to go to bid is ten o'clock and dat little boy wat come las nite he crying an i mus go to look on him we sen al our regard to you and hope yoor family is wel goot nite write so quick as you cant to

PETER LA CAMPAIGN,
Algnack,
Michigan Stat.

FOR several years the San Francisco *Commercial News* has issued a book giving the names of all vessels owned or registered in Pacific Coast Districts, also giving particulars as to date of building, dimensions, tonnage, etc. This valuable book has just been issued for 1895 and it appears that during the past year 131 vessels with a net tonnage of 27,695 have been added to the list. With its usual generosity and progressive spirit the *Commercial News* presents these books to any one who will send for them not limiting its generosity to subscribers alone.

SUPERVISING INSPECTORS' REPORTS, CALENDAR YEAR 1894.

RECAPITULATION.

Steamers inspected	7,861
Tonnage of steamers inspected (net)	1,614,225.42

BOILERS INSPECTED.

Steel	7,239
Iron	3,604
Total number of boilers inspected	10,843

BOILERS FOUND DEFECTIVE.

Steel	422
Iron	302
Total number of boilers found defective	744

BOILERS GAVE WAY UNDER HYDROSTATIC PRESSURE.

Steel	63
Iron	42
Total number of boilers gave way under hydrostatic pressure	105

OFFICERS RECEIVED ORIGINAL LICENSE.

Masters	258
Joint masters and pilots	5
Mates	223
Pilots	977
Joint pilots and engineers	209
Engineers	1,106
Special engineers	23
Total number of officers receiving original license	2,801

RECEIVED RENEWAL OF LICENSE.

Masters	9,356
Joint masters and pilots	374
Mates	1,944
Pilots	7,705
Joint pilots and engineers	432
Engineers	16,328
Special engineers	49
Total number of officers receiving renewal of license	36,188
Grand total of officers licensed	38,989

CASUALTIES—LOSS OF LIFE.

Lives lost by explosion or accidental escape of steam	15
Collision	8
Fire	6
Wreck or founder	79
Lives lost from other causes	122
Total number lives lost	230

Same number as in previous year.

LOSS OF PROPERTY.

Property lost by collision	$191,698.86
Explosion	7,900 00
Fire	659,458 50
Snags, ice, rocks, breaking machinery, etc.	245,360.00
Wreck or founder	762,235.00
Total value of property lost	$1,866,652.36
Decrease in value of property lost over previous year	$968,303.93
Decrease in number of steamers inspected over previous year	2
Increase in tonnage of steamers inspected over previous year	6,328.68
Increase in number of boilers inspected over previous year	58
Increase in officers licensed over previous year	870

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—MICHIGAN.

GROSSE ISLE SOUTH CHANNEL RANGE LIGHT-STATION.—Notice is hereby given that, on or about March 20, 1895, the lights of this range, which mark the line for running the main channel of the Detroit River from Limekiln Crossing to its intersection with the line marked by the lights of the Grosse Isle North Channel Range, will be exhibited each from a square, white, pyramidal, inclosed wooden tower, with a gallery with black hand rail at the top of the square part, and surmounted by an octagonal lantern having three sides glazed and a copper roof. The characteristics of the lights and their geographical positions will not be changed. The focal plane of the front light will be 30 feet and of the rear light 50 feet above the mean level of the river.

By order of the Light-House Board.

JOHN G. WALKER,
Rear-Admiral U. S. Navy, Chairman.

Office of the Light-House Board, Washington, D. C., March 15, 1895.

CHIEF OF THE REVENUE CUTTER SERVICE.

Capt. I. G. Shepard, chief of the revenue cutter service of the treasury department, died at Washington on Thursday from pneumonia. Capt. Shepard was stricken with a congestive chill while at work on Tuesday, the fifth inst., and had been confined to his bed ever since. His illness was attributed to his efforts to secure legislation for the benefit of the superannuated officers of the service. He worked early and late in their behalf during the closing hours of congress and remained at the capitol the entire night session of the senate on the second inst., and is supposed to have caught cold going home at 3 o'clock in the morning. He leaves a wife and two children. He was one of the oldest and most efficient officers in the revenue cutter service. A native of Massachusetts, he was appointed a third lieutenant in 1865, was promoted to second lieutenant March 20, 1869, a first lieutenant July 10, 1870, and a captain March 14, 1878. In December, 1889, Secretary Windom detailed him as chief of the revenue marine division, an office previously held by civilians only, and he served there continuously ever since. Capt. Shepard saw much hard, active service and had an exceptionally fine record. Prior to his transfer to Washington, he commanded the revenue cutter Bear, and made several cruises in Bering Sea and northern Alaskan waters to carry out the policy of the government to prevent illicit sealing. He was very well known and highly esteemed.

VESSEL TRANSFERS.

The books of the marine clerk of the Port Huron Custom House show the following transfers of vessel property for the quarter ended March 1: Schr. Morning Star, Henry J. Trombley to Robert Beutal, $350; schr. Peshtigo, John C. H. Pringle to Chas. F. Pauer, $200; schr. Active, Peter G. Smith to Chas. O. Smith, $3,000; prop. Fanchon, Frank Brabau, Jr., to Wm. G. Swartout, $1,600; tug Weideman, Tittawabassee Boom Co. to Buntill & Smith, $4,500; schr. Morning Star, Joseph M. Trombley to Henry J. Trombley, $250; one-half schr. City of the Straits, Dana Bros. to John E. Mills; schr. Little Wisahickon, Mary A. McKay to Geo. McKay, $2,500; schr. Emma, Wm. Cooper to Chas. S. Northup and O'Brien O'Donnell, $200; one-third prop. F. W. Fletcher by Allen M. Fletcher to Frank W. Fletcher; one-twelfth prop. F. W. Fletcher by Allan N. Fletcher to Hiram D. Moore; eight-twentieths schr. Leader, W. F. Ellinberger and others to N. and B. Mills; schr. S. B. Ames, Wm. McGarry and Elmer E. Strong to Wm. G. Cleary, $350; one-fifteenth prop. N. Mills, by F. H. Ellinberger and others to N. and B. Mills; one-fortieth schr. Thos. Gawn, Thomas McDonough to Wm. C. Tapert, $350; one-sixteenth str. St. Lawrence, Joseph Cottrell to Horatio T. Morley, $4,357; one-third schr. Harvey Bissell, Charles Sheurman to Tena Scheurman, $1,000; two-twenty-fourths str. Thos. Cranage by J. W. McGraw to G. A. Tomlinson, $12,000; one-eighth barge Albany, M. P. Scott, for estate of Maxum, to J. Herrick Bushnell, $325; schrs. Active, Alert and Advance, by Stephenson Transportation Co. to P. C. Smith, $15,000; schrs. Noquebay and Mantenee, by the Stephenson Transportation Co. to Madden Bros., $12,000; one-third schr. Harvey Bissell, Charles O. Smith to Henry A. Pierce and Benjamin C. Kohn, $1,500; part interest str. Iosco, Edwin F. Holmes to Olive Holmes, Ellen Holmes, Olive Carleton and Harriet F. Holmes; three-fourths str. Sailor Boy, the Boy Line & Boat Co. to John Dashaw, Thos. McDonough and Frank Brabau, $7,500; schr. Mary Miller, E. O. and S. L. Eastman to Phillip Ellery, $40; the schooner was afterwards sold to John A. Fox and F. D. Sedee, for $250.

"FOG SIGNALING" BY BE-FOGGED LANDLUBBERS.

CAPTAIN: "What's that signal Mr. Jones? Should we heave to or go astern?"
FIRST OFFICER: "Heave to, Sir."
CAPTAIN: "What do you say, Mr. Smith?"
SECOND OFFICER: "Oh, we can go ahead, Sir!"

TO PATROL BEHRING SEA.

Secretary Carlisle has designated the following revenue cutters to patrol Behring Sea this season: The Corwin, Rush, Bear, Grant, Wolcott and Perry. The Grant and Perry are additions to the Pacific revenue cutter fleet since last season, the Grant having been stationed at New York and the Commodore Perry on Lake Erie. Captain Hooper, as the senior officer will be in command of the revenue cutter fleet.

Several warships, it is said, will probably be designated to assist the revenue cutter fleet later in the season, should the number of poachers in the sea become so numerous that the revenue cutter fleet cannot properly protect the interest of the United States in conjunction with the British fleet of warships.

AT their shipyard near Sault Ste Marie, Dunbar & Sullivan have lengthened the dredge Brian Boru twenty-five feet—ten feet forward and fifteen feet aft—and when completed she will be the largest dredge on the lakes. Their largest piece of work is the building of a new steel dump scow, which will be 160 feet over all in length, with 24 feet beam and 11 feet depth. The scow will be supplied with eight pockets and will have a capacity of 440 yards of earth.

SALARIES CUT DOWN.

When asked the other day why the salaries of the superintendents of the life-saving service along the lakes had been decreased from $1,800 to $1,600, Gen. Supt. S. I. Kimball said: "I regret exceedingly that it has been done. Secretary Carlisle in his annual estimates recommended that the salaries of all the superintendents in the country except one be made $1,800. The exception was the superintendent of the Florida district. As his salary had recently been increased from $1,200 to $1,500, and as his duties are less onerous than those of any other superintendent, the secretary recommended that his salary be left at $1,500. The House did not follow the secretary's recommendations, but left all salaries as they now are. The salaries are provided for in the sundry civil bill, and when that bill went over to the senate the committee on appropriations decided to make all the salaries $1,600. Even the Florida man was given a raise, while superintendents having far more responsibility and work were reduced in pay. As soon as I heard of this action I went to the committee and protested, but in the rush of the closing hours of the session they would not listen to me.

"The duties of these superintendents are attended by much peril, and three have lost their lives since the service was organized. Two were drowned and one lost his life on account of exposure. Capt. Kiah, of the Superior-Huron district, is a fair sample of the kind of men we have. At the time of the loss of the Point aux Barques life-saving crew he was found clinging to the roots of a tree near the scene of the disaster in an unconscious condition, and he was the only survivor. In addition to the perils of the service, there is great financial responsibility, and every superintendent must furnish a heavy bond. While this matter was pending, Supt. Rich, a noble man, wrote to a friend in this city that he had heard of the plan to cut the salaries of the $1,800 men and raise his own, and with characteristic unselfishness he declared that there was no justice in such a proposition. I trust the new congress will remedy this wrong. Most of the superintendents ought to receive $2,500. A number of them are compelled to pay money out of their salaries for clerk hire. Supt. Robbins, of Grand Haven, has recently had the care of a government storehouse added to his duties, and he ought to have a raise." The superintendents who have had their salaries reduced can rely upon Supt. Kimball to do all he can for them when the new congress convenes.

THE MARINE RECORD

ESTABLISHED 1878.

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SEAWORTHY.

It is of course a foregone conclusion that a vessel must always be kept in a seaworthy condition while engaged in business. Whatever her class may be, she is to be well found, manned, and equipped for the voyage or enterprise, and on these facts hinge the right to sail, charter or hire out. It is chiefly to show the degree of a vessel's capability that classification societies exist, as from a totally disinterested standpoint such societies are enabled to justly and equitably rate all types, ages, and condition of floating property, or at least such is the situation that they are supposed to, and ought to maintain at all times.

A vessel being properly manned and equipped to perform a certain voyage, venture or enterprise, the owner should then feel that he had accomplished all that reasonable skill, good business judgment and forethought called for in the matter, and we are not a little surprised to learn this week that the Supreme Court has affirmed the decision of the Circuit Court of Massachusetts in holding a shipowner liable for loss occasioned to cargo through the breaking of a steamer's shaft.

In this case the action was brought in the Circuit Court of Massachusetts in the form of a libel in admiralty to cover damages caused by the breaking of the steamer's shaft. No defect in the shaft was visible or could have been detected by the usual and reasonable means if the shaft had been taken out and examined. No negligence on the part of the owners of the steamship was proved, and no reasonable skill on the part of the vessel, her owners or crew could have obviated the loss. It further appears, nine days after leaving port in smooth weather, the propeller shaft broke straight across in the stern pipe. There had been no heavy weather, and the propeller did not strike against any rock, or derelict, or other object. The cause of the breaking of the shaft was ascribed to its having been weakened by meeting with extraordinarily heavy seas on previous voyages. The after events certainly proved that at the time of leaving port the shaft was unfit for the voyage, and by reason of its unfitness the vessel was unseaworthy, but how could this have been known to the shipowner? Granted that in every contract for the carriage of goods by sea, there is a warranty on the part of the shipowner that the ship is seaworthy at the time of beginning her voyage, and not merely that he does not know her to be unseaworthy, or that he has used his best efforts to make her seaworthy. The warranty is absolute that the ship is, or shall be, in fact seaworthy at that time, and does not depend on his knowledge or ignorance, his care or negligence.

In rendering his decision Mr. Chief Justice Fuller took occasion to say:

"In our opinion, the shipowner's undertaking is not merely that he will do and has done his best to make the ship fit, but that the ship is really fit to undergo the perils of the sea and other incidental risks to which she must be exposed in the course of the voyage; and, this being so, that undertaking is not discharged because the want of fitness is the result of latent defects.

"The necessity of this conclusion is made obvious when we consider the settled rule in respect of insurance, for it is clear that the undertaking as to seaworthiness of the shipowner to the shipper is coextensive with that of the shipper to his insurer.

"That rule is thus given by Parsons (1 Marine Insurance, 367): 'Every person who proposes to any insurers to insure his ship against sea perils, during a certain voyage, impliedly warrants that his ship is, in every respect, in a suitable condition to proceed and continue on that voyage, and to encounter all common perils and dangers with safety. * * * This warranty is strictly a condition precedent to the obligation of insurance; if it be not performed, the policy does not attach; and, if this condition be broken, at the inception of the risk in any way whatever and from any cause whatever, there is no contract of insurance, the policy being wholly void.'"

THE Wm. Cramp & Sons' shipbuilding and engine works, Philadelphia, Pa., may truly be called a national industry. Since the establishment of the works, in 1830, Cramps have built in all some 282 vessels. Of these, 21 have been vessels for the United States Navy, 4 were steam cruisers for the Russian Navy, 73 were ocean steamers, of from 1,000 to 10,000 tons register and 54 were tug boats. The shipyard at present covers 31 acres of land. It is so equipped that five vessels of the largest kind may be constructed at the same time, and preparations are being made to increase the capacity to eight. In the past twenty years the company has increased their capital from $500,000 to $5,000,000. There are at present employed at the yard over 5,600 hands, and this does not include an enormous amount of labor employed by contributory industries upon which the shipyard depends for material in various stages of their work. The pay roll amounts to $54,000 per week and yet there are people idiotic enough to advocate purchasing our mercantile tonnage abroad.

THE North German Lloyd Co., former owners of the ill-fated steamer Elbe, is probably the largest ship-owning firm in the world. It has lines to New York and Baltimore, South America, Hong Kong, Japan, Singapore, Australia, Brindisi, Port Said, London, Hull and Norderney. The total tonnage of the eighty vessels which form its fleet is placed at 180,000 tons, aggregating close on 150,000 horse-power, besides which they own 60 lighters of 11,502 tons, in addition to their sea-going ships. For many years the North German Lloyd vessels have been exceedingly popular in the Atlantic trade, and the numbers of passengers which they have carried have been in excess of the numbers carried by any of the English lines navigating the Atlantic. The company was founded in 1856, and a year or two later several of the larger steamship lines amalgamated and thus formed the basis of the present immense undertaking known as the Norddeutscher Lloyd.

HAVING been requested by members of the Shipmasters' Association to print the new "rules of the road," as embodied in what is known as the White bill, so that the entire sailing community might read, mark, learn, and digest the changes which have been brought about, we desire to say that the Hydrographic Department, U. S. N., has already issued a bulletin giving the act in full, and we learn from the branch hydrographic offices at Chicago and Cleveland that copies of same will be mailed to any address on the request of shipmasters, owners, or other interested persons; furthermore, the supervising inspector-general of steamboats has just completed a compilation of the changes approved at the last meeting of the board of supervising inspectors, and these copies will be generally distributed among licensed officers.

ON February 28, the water level at the United States engineer's gauge in Oswego harbor, established in 1838 by J. W. Judson of the engineer corps, was at the zero point; also on March 1. This is extreme low water level, below which the water has never gone since the gauge was established fifty-seven years ago. Now the water is two or three inches above zero. This zero point is two and one-third feet below the average lake level of twenty years, and a low season may be expected. The water in Lake Ontario was as low as it is now in 1846, 1848, 1872 and 1891.

A special report from Whitefish Point to THE RECORD says that there is two feet of solid blue ice in that vicinity and the temperature was down to twenty degrees below zero one morning last week. From present indications navigation will not be open until May.

CAPT. JAMES REID'S BOLD PLAN.

Capt. James Reid of Bay City has made a proposition to the government to recover the mail lost with the ill-fated Elbe on January 30. Capt. Reid is one of seven divers to offer their services, but the other six have drawn out of the contest and only the indomitable Michigan man remains ready to fulfill the conditions of the offer. For his services in recovering the mail and as a wrecker he asks the sum of $200,000, which is considered by experts to be very reasonable when the great danger is taken into consideration. The Elbe is supposed to be in about 27 fathoms of water, and few, if any, expert divers most thoroughly clad in the best submarine garments have reached that depth. Capt. Reid's record is 110 feet, which he attained at Muskegon while working on the hull of the sunken scow which contained the machinery of the foundered steamer Wheeler.

The pressure at the depth of 130 feet would be something tremendous and hard, if not impossible, to estimate. At 110 feet it is 50 pounds to the square inch. In the Elbe's cargo was a large amount of valuable property and the mails. One of the passengers had $100,000 on his person at the time he was lost. All of this it is hoped to recover.

Capt. Reid has also a theory as to the wreck of the Chicora, and thinks it took place within a few miles of Benton Harbor and within sight of Captain Stines' coast home. He has an intimate knowledge of the craft, knew Captain Stines well and knew his ability as a seaman. He says that the Chicora left Milwaukee as reported and that Capt. Stines had perfect knowledge of the barometer and the weather indications. The Chicora had structural ability to withstand any lake storm and as all considerable storms on the lake come from the northwest, this would bring the wind abaft his beam on her ill-fated trip. Capt. Stines had positive instructions to keep clear of slush ice. The Chicora, according to Capt. Reid, ran on her time and in her course until her time ran out, when Capt. Stines and her gallant crew found themselves confronted by the ice banks. The Chicora then lay to, possibly with the intent of running back for Milwaukee or some other port that was not ice bound. As she came broadside she struck the ice and at the first crash the top works were swept off, when the dissolution of the hull was a matter of a short time. The hull at present is, so Capt. Reid says, within six miles of the shore and in 120 feet of water.

A MORGAN IRON WORKS' APPRENTICE.

The Chicago Shipbuilding Co. have in hand a larger number of vessels building than any one concern on the Great Lakes at the present time. This is especially gratifying, as the general manager of this shipbuilding and dry dock company, though a young man, can claim to be one of the "old guard" who were always proud of their "hailing port," the great City of New York, and their apprenticeship served in the old reliable and famous Morgan Iron Works that has weathered the adverse as well as the prosperous gales of half a century, and stands to-day a monument of that great industry which helps make up the great whole of American commerce. It is safe to say that there is to be found a graduate of the Morgan Iron Works in almost every state of the union, and none of them more proud of the distinction than W. I. Babcock, general manager of the big shipbuilding firm of Chicago.—*The Marine Journal*, New York.

OF the 3,352 vessels passing through the Suez Canal in 1894 only five bore the American flag, and these were war vessels or yachts. The net tonnage of the vessels passing was 8,039,105, and the tolls were $14,770,081.

A noteworthy feature of the present depression in maritime trade, with its accompaniment of low freights and stagnation in shipbuilding, is the relatively small proportion of sailing ship tonnage to steamers now in course of construction.

THE Dean Bros. Steam Pump Works have moved their office and works to First street, Indianapolis, Ind., where increased facilities for manufacturing pumps has been added to their former excellent plant. The brick machine shop and foundry adapted for many manufacturing purposes which they previously occupied is now for sale all ready equipped to start up at short notice.

APPOINTMENT OF OFFICERS FOR 1895.

	MASTER.	ENGINEER.
PARKER & MILLEN, DETROIT.		
Str. B. W. Blanchard	T. Meikleham	E. W. Tilley
" Greyhound	Bert Baker	D. J. McMillan
Wreck. Tug Saginaw	Thos. Hayes	M. Clancey
Tug Balize	Thos. Carney	D. W. Blauvett
" Onaping	John E. Tobin	Neil Maitland
Wrecker Favorite	Martain Swain	G. L. Simmons
A. A. PARKER, DETROIT.		
Str. A. A. Parker	J. T. Hutton	Jas. Falconer
" Jno. Pridgeon, Jr.	D. N. Sherwood	John Mogan
" Str. John Oades	Timose Lemay	H. L. Merrill
Barge B. W. Parker	Henry Morey	
" Red Wing	John Anderson	
" San Diego	John Mason	
Schr. Saveland	Wm. Lennon	
CAPT. J. W. MILLEN, DETROIT.		
Str. Iron King	Wm. F. Millen	John Hagemer
" Iron Chief	Wm A. Irvine	August Cobo
" Iron Duke	N. L. Miner	Jacob Zeh
" Iron Age	H. W. Bogert	John Phelan
Barge Iron Queen	A. J. Mahon	
" Iron Cliff	Thos. Fitzsimmons	
" Iron State	W. W. Carter	
" Iron City	M. J. Pidgeon	
GOODRICH TRANS. CO, CHICAGO.		
Str. Virginia	H. E. Stines	G. P. Roth
" Indiana	A. Gallagher	R. Flint
" City of Racine	James Gee	J. E. Parks
" Atlanta	Wm. Nicholson	W. H. Jerome
" Menominee	Jno. Willson	J. Calan
" City of Ludington	John Raleigh	J. Bushman
" Chicago	Geo. Wittey	F. Neidirt
" Muskegon	Ed. Carns	Thos. Dorey
E. C. RECOR, ST. CLAIR.		
Str. Mark Hopkins	S. A. Lyons	S. G. Merrill
" F. W. Fletcher	H. D Moore	Wm. Brake
Schr. Porter	N. McDonald	
Barge Golden Rule	C. W. Recor	
MARINE TRANSIT CO, MARINE CITY.		
Str. Toltec	Jas. Taylor	Chas. Pierce
" Aztec	Jas. W Baby	Amos Horton
Schr. Zapotec	Peter Thomson	
" Miztec	H. S. Shackut	
AMERICAN TRANS. CO., Fairport, O.		
Str Fedora	F. A. Feck	— Stephen
" Nyanza	D. K. McDonald	— Blanchard
" Ujanda	C. H. Wilson	— Mead
CLEVELAND-CLIFFS IRON CO., CLEVELAND.		
Str. Pontiac	James B. Lowe	Thos. B. Kelley
" Frontenac	S. N. Murphy	E. V. Barry
" Pioneer	A. E. White	E. J. Jenkins
" Cadillac	John C. Symes	T. J. Rees
" Kaliyuga	John Lowe	Bernard Woods
" Edw. S. Pease	Thos. Sloan	.....
Schr. Fontana	Henry Harris	
" Planet	Frank Parrson	
MINNESOTA STEAMSHIP CO., CLEVELAND.		
Str. Maritana	J. P. Cottrell	Geo. Waterbury
" Mariposa	F. D. Root	S. H. Miller
" Masaba	C. H. Bassett	Geo. Arnold
" Marina	E. B. McQueen	D. A. Black
" Matoa	A. McFarland	W. W. Tyler
" Maruba	Fred. Hoffman	B. F. McCanna
" Mariska	H. Zeland	F. A. Smith
" Manola	H C. McCallum	M. Jamieson
Schr. Malta	Wm Holly	
" Marcia	T. J. Crowley	
JOHN T. HUTCHINSON, CLEVELAND.		
Str. Germanic	J. McNeff	C. Price
" Rube Richards	M. H Place	C. F. Pomeroy
" Queen of the West	J. DeBeau	Wm. Dent
Schr. E. C. Hutchinson	L. G. Vosburgh	
" May Richards	T. K. Woodward	
H. J. WEBB & CO., CLEVELAND.		
Str. Roumania	R. J. Cowley	Edward Prince
" J. H. Outhwaite	Lewis Stone	R. A. Davidson
" Iroquois	Thos. Jones	Martin Burns
Schr. John J. Barlum	Harry Phillips	
" H. A. Barr	Jno. McKeighan	
JOHN W. MOORE, CLEVELAND.		
Str. J. W. Moore	Richard Neville	— Walder
" Louisiana	John Colter	Harry Stone
" Marquette	Edw. Chilson	H. T. McAuley
" Colonial	J. H. Stover	Geo. Masters
" N. K. Fairbank	Truman Moore	T. Moore
OGDENSBURG TRANS. CO., OGDENSBURG.		
Str. J. R. Langdon	Harvey Brown	Jno. N. Phillips
" W. A. Haskell	Dan'l Murphy	A. D. Houghton
" W. J. Averill	W. D. Wait	Harris Higgins
" Gov. Smith	W. S. Shay	Jas. Trumbull
" F. H. Prince	D. A. Kiah	D. J. Costello
" A. McVittie	W. H. Williams	Morris Gore
" W. L. Frost	E. B. Shay	Jas. Chestnut
" H R. James	Jas. Owens	Robt. Chestnut
SHORES LUMBER CO., CHICAGO.		
Str. Adella Shores	J. J. Carr	W. J. McKittrick
" Jas. H. Prentice	J. N. Comstock	M. Mahr
Barge Middlesex	P. T. Weimar	
" Halstead	L. Davidson	
" Constitution	Louis Johnston	
WM. DULAC, MT. CLEMENS, MICH.		
Str. F. R. Buell	C. W. Woodgrift	John Deihl
" Canisteo	W. J. Lynn	W. G. Boynton
" A. Weston	M. Hyde	John S. Ranney
" Chas. A. Street	A. P. Gallino	C. F. Lamb
Barge A. Stewart	John Destrois	
" S. B. Pomeroy	Jerry Cottrell	
" J. B. Lozen	John B. Lozen	
" Eleanor	Frank Duboy	
" Jennette	Ed. Moore	
" Elvina	Wm. Campau	
" Fulton	Frank Laforge	

FLOTSAM, JETSAM, AND LAGAN.

Repairs on the government piers at Menominee are nearing completion.

The stock of grain in store at Superior and Duluth March 9, was 11,205,750 bushels.

A wharf 200 feet long and 16 feet wide is being built at Gilmore's ship yard, in Toledo.

Nicholas J. Wheelan, a member of the life-saving crew at Holland, Mich., has been admitted to the bar.

As a condition for the release of the fishing tug Grace, the Dunkirk owner must pay a small fine and the costs of the Dominion courts.

F. W. Wheeler, of West Bay City, will build a wooden tug, 60 feet keel, 16 feet beam and 8 feet hold, for Henry Corgan, of Eagle Harbor, Mich.

The steam ferry Helen Taylor, of Ludington, has been sold by W. S. Taylor to the Flint & Pere Marquette Transportation Co. Consideration, $1.

The Lizzie A. Law will be sold at public auction at Detroit on March 12. Work has been begun on a 500,000 bushel grain elevator at Prescott, N. Y.

The Goodrich boats Atlanta and City of Racine will run on the Chicago, Grand Haven and Muskegon route this season, and are now being fitted out at Chicago.

The Chicago *Inter Ocean* says that negotiations are in progress for the purchase of a large steamboat and consort, to be transformed into and used as a traveling department store.

Mulhall's statistics show remarkable evidence of the manner in which labor saving machinery has displaced men. Found in the fact that where in 1860, 171,000 seamen were required on the ships that carried the 18,800,000 tons of the world's commerce, in 1892 only 249,000 seamen were required to carry 115,320,000 tons.

The coming season the Hart line steamers Fannie C. Hart and Eugene C. Hart will run on the Cheboygan and Green Bay route, each making one trip a week. Capt. H. C. Hart will be master of the Fannie C. Hart, and Capt. C. B. Hart of the Eugene C. Hart.

The Bureau of Navigation has granted an American register to the ship May Flint, formerly the British steamship Persian Monarch which was wrecked on Long Island last spring. The May Flint will be the largest sailing vessel under the American flag.

During the coming season the work of widening Sturgeon Bay Canal will be commenced. The cut will be increased in width 30 feet on each side, the work to be done at the end of the revetment on the north side of the canal first, and from there north. The cost of the entire improvement is estimated at $250,000.

Wm. Rae, a school teacher at Derby, Mich., says positively that he heard the whistle of the steamer Chicora for fully five minutes about 9 o'clock in the evening of Jan. 21. It gradually became fainter until he could hear it no longer. He says that with two good tugs and plenty of chain he could find the Chicora at the bottom, six miles south of St. Joseph, and six miles out.

The Dominion order-in-council settling the doubt as to the bearing of the tariff on booms has been passed. It declares that booms, consisting of sticks and chains, when imported into Canada from the United States for the purpose of enclosing, confining, or towing to the United States logs or timber of Canadian growth, are to be free from customs duty, and this is to remain in force and effect so long as the United States permits the free entry of Canadian made booms of sticks and chains.

The name of Hon. Edward C. O'Brien, Commissioner of Navigation under President Harrison's administration is now before the mayor of New York as one of the probable Dock Commissioners. His name was presented, unsolicited and unknown to himself, by Mr. Henry F. Dimock, well known in shipping circles and also as Chairman of the Sub-Committee of the Committee of Seventy on Water Front. Mr. O'Brien, if appointed, will be the young member of the Board, and his well-known familiarity with the wants of the shipping interests would make his selection desirable and secure the important qualifications of youth, energy and ability.

PERIOD OF NAVIGATION ON LAKE SUPERIOR.

The chief of the Weather Bureau has sent out the following official statistics of the opening and closing of navigation at ports on Lake Superior:

YEAR.	DATE OF OPENING NAVIGATION.				DATE OF CLOSING NAVIGATION.			
	Sault Ste. Marie, Mich	Marquette, Mich.	Duluth, Minn.	Port Arthur, Ont	Sault Ste. Marie, Mich.	Marquette, Mich.	Duluth, Minn.	Port Arthur, Ont.
1855	.....	.....	Apr. 15	.....	Nov. 23	.....	Dec. 16	.....
1856	May 4	.....	Apr. 16	.....	Nov. 28	.....	Nov. 22	.....
1857	May 9	.....	May 27	.....	Nov. 30	.....	Nov. 20	.....
1858	Apr. 18	.....	Mar. 20	.....	Nov. 20	.....	Nov. 20	.....
1859	May 3	.....	May 25	.....	Nov. 28	.....	Nov. 9	.....
1860	May 11	.....	Apr. 7	.....	Nov. 26	.....	Dec. 4	.....
1861	May 3	.....	June 12	.....	Nov. 14	.....	Dec. 12	.....
1862	Apr. 27	.....	Apr. 28	.....	Nov. 17	.....	Dec. 16	.....
1863	Apr. 28	.....	May 10	.....	Nov. 24	.....	Dec. 7	.....
1864	May 2	May 8	Apr. 23	.....	Dec. 4	.....	Dec. 1	.....
1865	May 1	Apr. 28	Apr. 22	.....	Dec. 3	.....	Dec. 5	.....
1866	May 5	May 9	May 5	.....	Dec. 3	.....	Dec. 10	.....
1867	May 4	May 6	Apr. 19	.....	Dec. 3	.....	Dec. 1	.....
1868	May 2	May 3	Apr. 1	.....	Dec. 3	.....	Nov. 21	.....
1869	May 4	May 7	Apr. 25	.....	Nov. 29	.....	Nov. 12	.....
1870	Apr. 29	Apr. 30	Apr. 12	.....	Dec. 1	.....	Nov. 21	.....
1871	May 8	May 9	Apr. 5	.....	Nov. 29	Nov. 22	Dec. 6	.....
1872	May 11	May 13	Mar. 9	.....	Nov. 26	Nov. 25	Nov. 24	.....
1873	May 5	May 21	May 10	Apr. 28	Nov. 28	Nov. 22	Dec. 30	Dec. 3
1874	May 12	May 13	May 2	Apr. 18	Dec. 2	Nov. 27	Dec. 11	Dec. 28
1875	May 12	May 20	May 12	May 12	Dec. 2	Nov. 24	Dec. 10	Dec. 4
1876	May 8	May 12	May 2	May 6	Nov. 26	Nov. 26	Dec. 19	Dec. 14
1877	May 2	May 5	Apr. 25	Apr. 17	Nov. 30	Nov. 28	Dec. 17	Dec. 31
1878	Apr. 8	Apr. 18	Mar. 23	Mar. 18	Dec. 3	Nov. 26	Jan. 2 '79	Dec. 31
1879	May 2	May 8	Apr. 17	Apr. 24	Dec. 3	Nov. 23	Dec 12	Dec. 20
1880	Apr. 28	May 4	May 1	Apr. 5	Nov. 15	Nov. 29	Dec. 17	Dec. 3
1881	May 7	May 11	May 8	May 3	Dec. 5	Nov. 23	Nov. 26	Dec. 31
1882	Apr. 21	Apr. 25	Apr. 15	Mar. 18	Dec. 3	Nov. 27	Dec. 30	Dec. 7
1883	May 2	May 5	Apr. 9	Apr. 21	Dec. 11	Nov. 28	Dec. 24	Dec. 30
1884	Apr. 23	Apr. 30	May 1	Apr. 24	Dec. 10	Dec. 5	Dec. 25	Dec. 16
1885	May 6	May 11	Apr. 27	May 5	Dec. 2	Dec. 2	Nov. 29	Dec. 20
1886	Apr. 25	Apr. 28	May 7	Apr. 30	Dec. 4	Dec. 1	Dec. 14	Dec. 16
1887	May 1	May 5	May 4	May 11	Dec. 2	Dec. 1	Dec. 28	Dec. 16
1888	May 7	May 11	May 11	May 21	Dec. 4	Nov. 26	Dec. 31	Dec. 27
1889	Apr. 15	Apr. 21	Apr. 11	Apr. 20	Dec. 4	Nov. 30	Dec. 4	Dec. 2
1890	Apr. 20	Apr. 23	Apr. 16	May 1	Dec. 3	Dec. 3	Dec. 8	Dec. 3
1891	Apr. 17	May 1	Apr. 30	May 1	Dec. 8	Dec. 2	Dec. 7	Dec. 27
1892	Apr. 18	Apr. 21	Apr. 20	Apr. 27	Dec. 6	Dec. 6	Dec. 6	Dec. 24
1893	Apr. 29	May 7	May 1	May 22	Dec. 6	Dec. 3	Dec. 8	Dec. 30
1894	Apr. 17	Apr. 20	Apr. 18	May 1	Dec. 6	Dec. 4	Dee. 5	Dec. 10
Average	May 1	May 4	Apr. 24	Apr. 26	Dec. 1	Nov. 28	Dec. 8	Dec. 12

STEAM LIFEBOATS.

(*From The Safety Valve.*)

It has long been recognized in Great Britain that the possibilities of service of the Royal Lifeboat Institution could be greatly increased if, on the more dangerous parts of the coast, steam lifeboats could be substituted for the sail and rowing boats, which in a high sea, when they are mostly needed, can only be worked with great difficulty. But the conditions were against the use of paddles or screw propellers, as the pitching of the boat would have involved racing so frequently that the engines might give way at the critical moment. The attention of the board was thus directed to trials of jet propulsion, and in December, 1890, a boat was designed and completed by R. & H. Green for the Institution. This was the first mechanically propelled lifeboat built, and the success attained has solved the problem. The first boat, named the Duke of Northumberland, is 50 feet long, 14 feet beam, and her loaded displacement at 3 feet 6 inches draught is 26 tons. Her propelling machinery, constructed by Thornycroft, consists of a horizontal compound surface condensing engine of about 170 H. P., driving a nearly horizontal turbine of 30 inches in diameter, which delivers its water through two outlets in the sides of the boat, and draws its supply through a vertical scoop-shaped inlet amidships. The boiler is of the Thornycroft water-tube type, with a heating surface of 606 square feet, and a grate surface of 8½ square feet. This boat, after going through an exhaustive series of trials, making during one of them a distance of 1,000 miles without the least mishap, was eventually placed on the station at Harwich, and has since done excellent service in the saving of many lives and much valuable property. The experience gained was most satisfactory. This second and improved steam lifeboat, which we illustrate, is the outcome of the liberality of the people of Glasgow.

Designed by Watson, of yacht-designing fame, the vessel has been constructed at a cost of $17,500. The new vessel differs from the earlier vessel, besides being larger.

In addition to having two jets for forward propulsion and for astern propulsion, like the first boat, the City of Glasgow is able to throw a jet from the broadside which gives lateral propulsion, and this buffer will enable the lifeboat to throw herself broadside off a ship. This is a great gain, for the lifeboat is often in imminent danger of being dashed against a ship or wreck. Again, instead of propulsion being dependent, as in the case of the Duke of Northumberland, upon one horizontal turbine and inlet to feed it, the vessel is fitted with two vertical centrifugal disconnecting pumps placed on the starboard and port sides, driven direct from the crank shaft—to which they are coupled and coaxial—of an inclined compound direct-action engine of 200 horse-power. The buoyancy of the new vessel has been very carefully considered, and to add to her safety she is divided into no less than 13 watertight compartments, by longitudinal and thwartship bulkheads; moreover, should one of these be stove in, provision is made to connect it with the centifrugal pump inlets, so that the inflow of water would be utilized for the boat's propulsion.

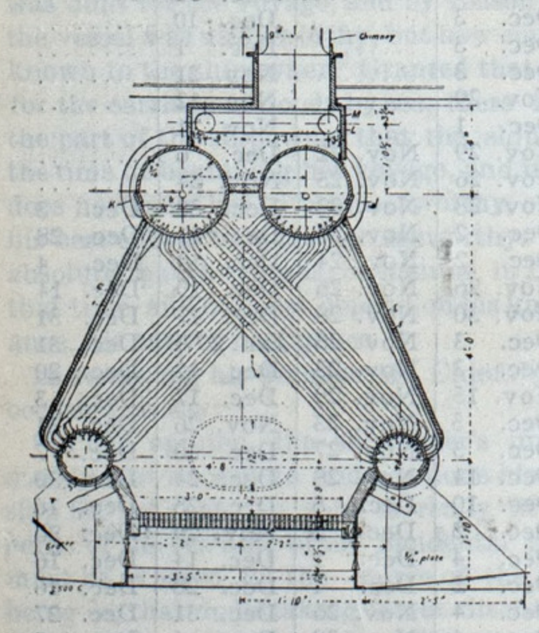
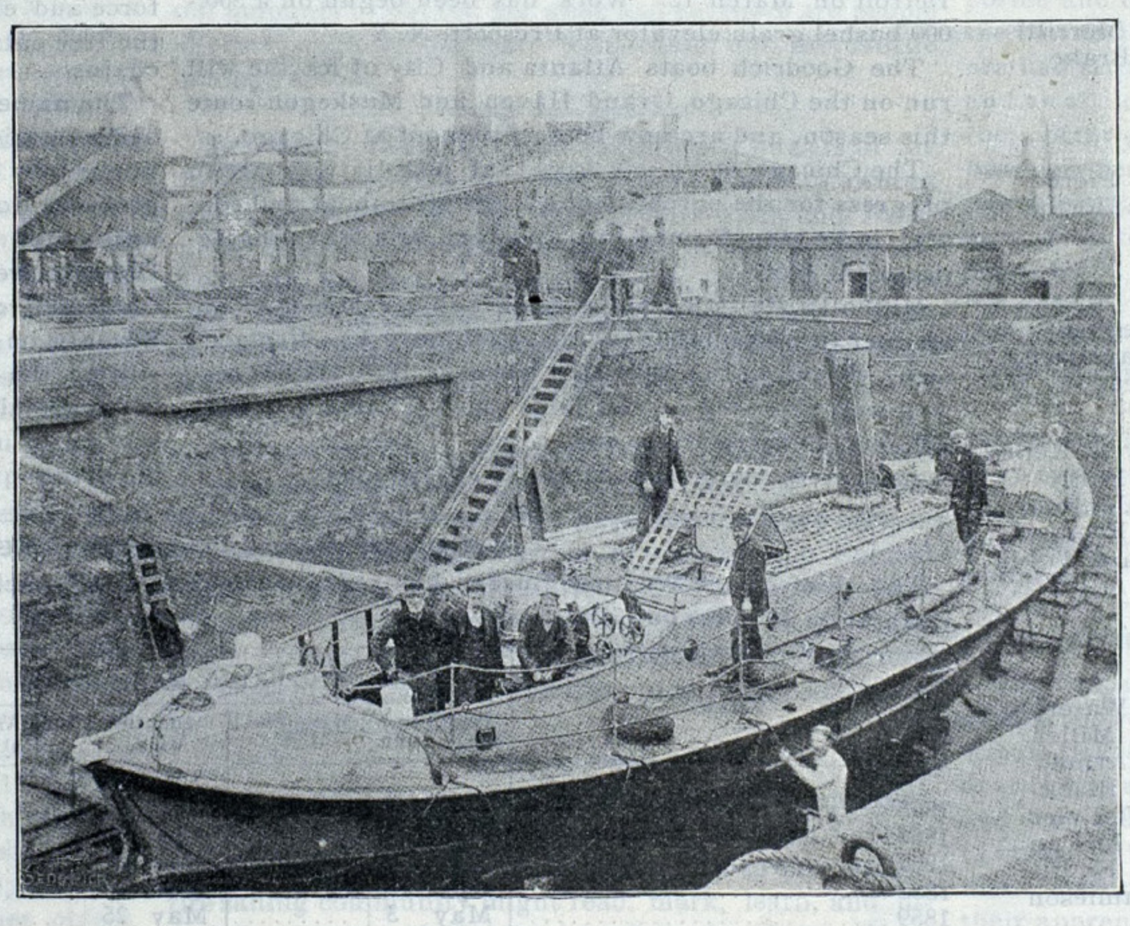


FIG. 2.

The City of Glasgow, which we illustrate, through the courtesy of the *Safety Valve*, New York and Chicago, is 53 feet long by 16 feet beam, 3 feet longer and 2 feet more beam than the first boat, while the depth is 5½ feet. The displacement is 30 tons, while the draught being 3 feet 3 inches. She has great carrying power, and will accommodate in the cockpit 30 to 40 passengers, while having on board 4 tons of coal and half a ton of fresh water in the reserve tanks. The model is very fine, the area of the rudder noticeably large, while deep bilge keels of American elm have been fitted. The floor is flat. She is constructed for the most part of galvanized steel. There is a double bottom under the boiler and engine spaces. The general appearance of the vessel is shown in Fig. 1.

The machinery is probably the most interesting feature of the boat. It was constructed by J. Penn & Sons, the boilers, Hall's patent water-tube steam generator, being shown in Fig 2. Unlike most other designs, the boiler has two steam chests on the top as well as two water drums below. The former are 16 inches inside diameter, placed at 1 foot 10 inches centres, and the latter 8½ inches. The steam generating tubes pass diagonally from the right water drum up to the left steam chest. This arrangement allows of the escape of the products of combustion between the upper or steam chambers into the funnel, thus utilizing as far as possible the effective heat of the fuel. The tubes on the extreme wing act as downcomers in the process of circulation. The tubes are all of steel, and are 1 inch in diameter. Another feature is that the steam pipe on its way to the engine passes, as shown in Fig. 2, through the uptake of the boiler for the purpose of drying the steam. The boiler is 7 feet, 7 inches long, and the firegrate 5 feet, ½ inch long by 3 feet broad. The rate area is 15 square feet, and the heating surface 712 square feet, a ratio of 1 to 47.5 The



STEAM LIFE-BOATS. FIG. 1.

FIG. 4.

power developed with 2 inches air pressure in the closed stokehold was equal to 15 indicated horse-power per square foot of grate area, there being 3.16 square feet of heating surface per indicated horse-power. The boiler is placed in a separate water-tight compartment, as shown in Fig. 3. The propelling machinery is of Green's patent hydraulic type. Two centrifugal pumps, one on each side of the boat, are driven by an inclined direct acting compound engine, worked by steam of 150 pounds pressure. Each pump is fitted with two outlets, one ahead and the other astern; the astern outlets are also fitted to discharge in an athwartship direction, as shown by Fig. 3. The inlets are rectangular, 8 inches by 17 inches, and the outlets for going ahead 12 inches in diameter, and for going astern or laterally, 9 inches in diameter. Throttle valves worked from the deck direct the outflow fore and aft, and are connected on each side respectively, one closing as the other opens, the boat becoming stationary when both ahead and astern outlets are open half way. The athwartship discharge acts very efficiently for a sideways movement, keeping the boat from too near an approach to danger. The engines have cylinders 8½ inches and 15 inches in diameter by 12 inches stroke while the turbines are 2 feet 6 inches in diameter. The engines are fitted with a brass surface condenser and air pump worked off the crankshaft. The feed pumps are of Worthington type, and are duplicated, one in engine room and one in stokehold. A feed tank is also fitted to carry an extra supply of fresh water. A bilge connection is provided on one centrifugal pump for special use. The entire weight of the machinery is 10 tons. The engines developed on trial a maximum of 225 indicated horse-power, the contract being for 200 indicated horse-power.

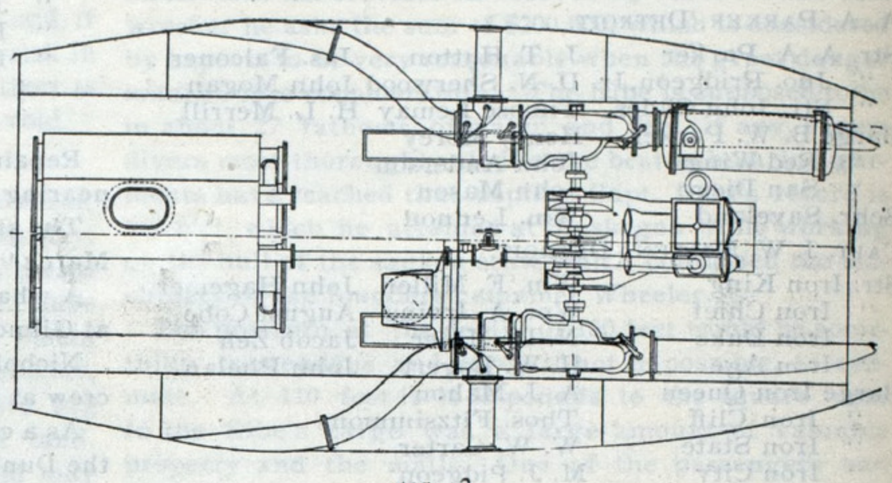


FIG 3.

As to the steaming trials, it may be interesting to give the results of the three hydraulic propelled lifeboats so far built. The President Van Heel has been built for the lifeboat Institution of South Holland.

DIMENSIONS AND TRIALS OF STEAM LIFEBOATS.

	Duke of Northumberland.	City of Glasgow.	President Van Heel.
Cylinders, inches....	8½ and 14½	8½ and 15	8½ and 15
Stroke, "	12	12	12
Diameter turbine.....	30	30	30
Heating surface, sq. ft.	606	712	810
Grate area, "	8½	15	18.8
Steam pressure, lbs..	129.7	150	150
Air pressure, inches..	2.1	2	2
Revolutions.....	425	400	405
Indicated horse power	186	225	230
Speed, knots.....	8.18	7.75	8.2

LIEUT. RIPLEY, executive officer of the coast survey schooner Eager, thinks that the Massachusetts coast is sinking at the rate of about two feet a hundred years, and Prof. John H. Sears, curator of mineralogy and geology at the Peabody Academy of Science, is of the same opinion. "In looking up soundings hereabouts a couple of years ago," said Lieut. Ripley, at Boston the other day, "I found more water than existing charts indicated. In sounding off Boston ledge and in the vicinity of the Graves and other places I found a greater depth than had hitherto been found, and so marked was this discrepancy that afterward, when my reports went to Washington, they sent me back to go over certain spots again, and try to find less water. I did so, but invariably verified my previous soundings. Where at least depth of 30 feet, for instance, was expected, I could not find less than 32 and so on.

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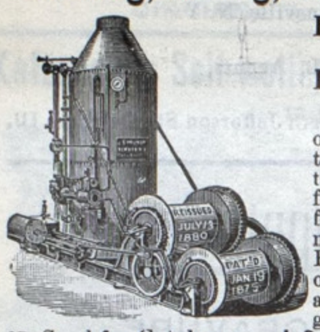

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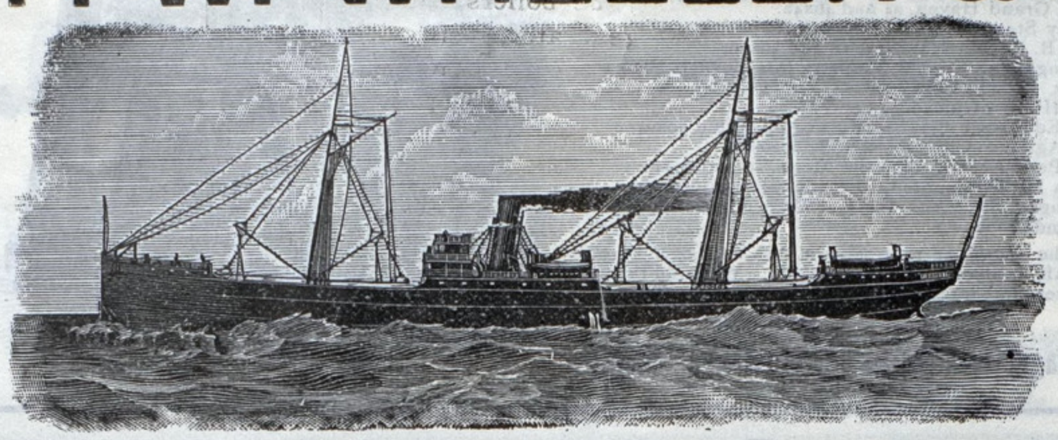

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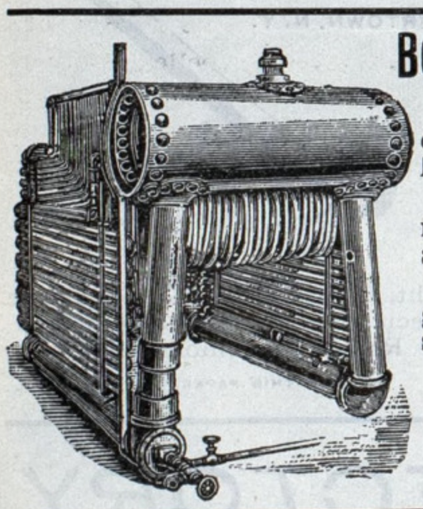

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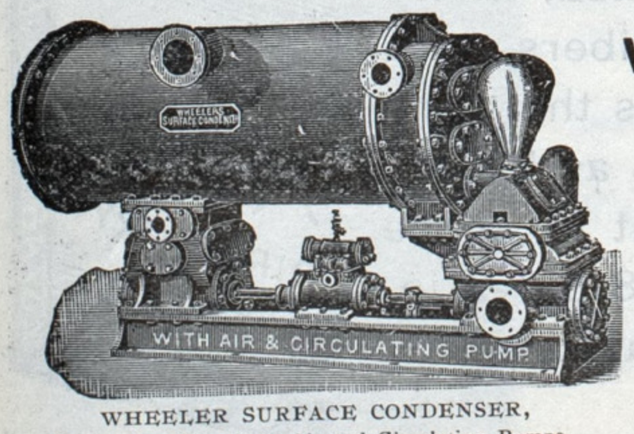

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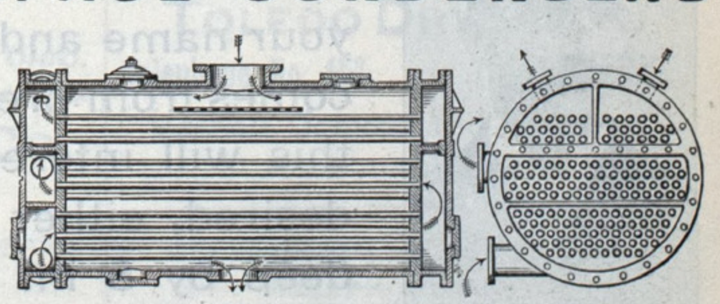

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U. S. ENGINEER OFFICE, 157 Ottawa St., Grand Rapids, Mich., March 5, 1895. Sealed proposals will be received here until 12 o'clock noon, April 4, 1895, and then publicly opened, for Breakwater construction at Petoskey, Mich., and for Pier extensions at Frankfort Harbor, Mich. Specifications furnished on application to G. J. LYDECKER, Lt. Col. Engrs. 10–13

U. S. ENGINEER'S OFFICE, Duluth, Minn., March 1, 1895. Sealed proposals for repair work to revetment at upper entrance, Portage Lake Ship Canals, Mich., will be received here until 12 m., April 1, 1895, and then publicly opened. Further information furnished here or at branch office, Houghton, Michigan. CLINTON B. SEARS, Major, Engineers. 13

OFFICE OF LIGHT-HOUSE BOARD, Washington, D. C., March 11, 1895. Sealed proposals will be received at this office until 2 o'clock p. m., on Thursday, the 11th day of April, 1895, for furnishing the materials and labor of all kinds necessary for the construction and delivery of one first-class composite Light-Vessel No. 66 for a fixed sum for said vessel delivered. Forms of proposal, plans and specifications, showing what is required, can be had or seen by applying to this office. The right is reserved to reject any or all bids and to waive any defects. JOHN G. WALKER, Rear-Admiral, U.S.N., Chairman. 11–12

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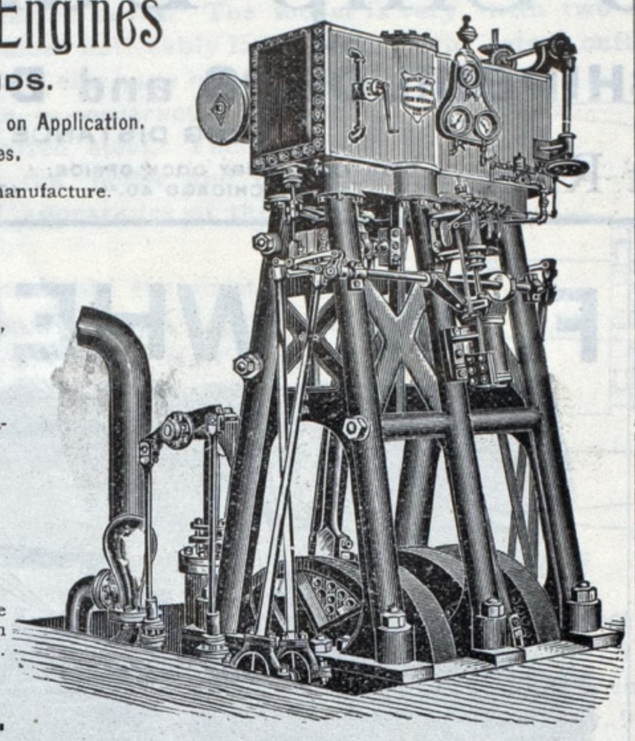

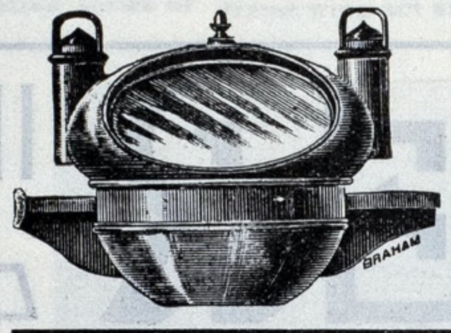

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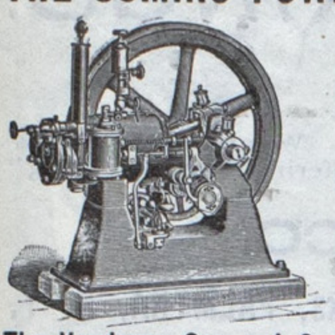

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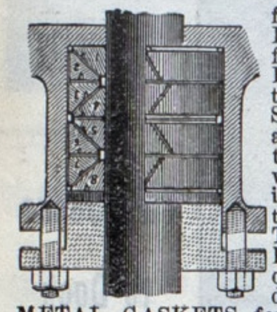

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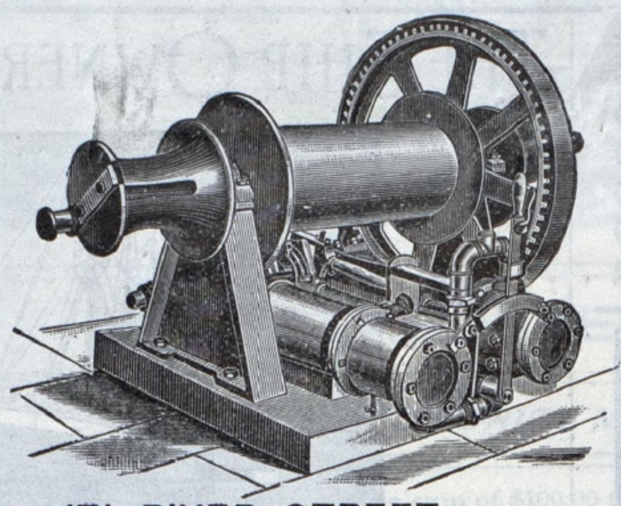

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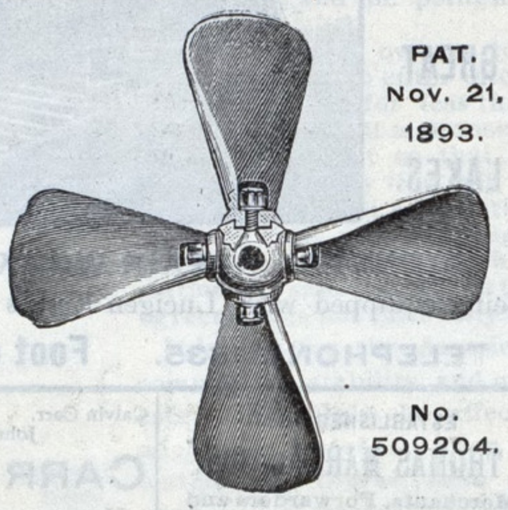

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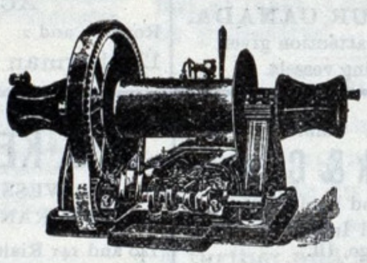

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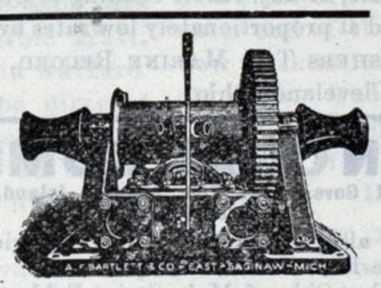

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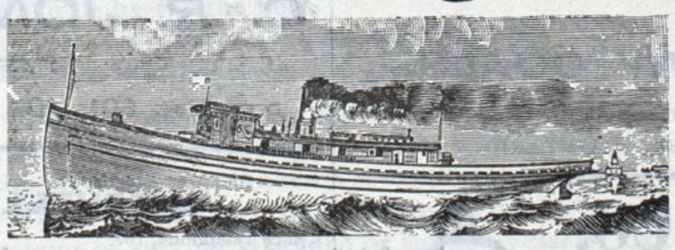

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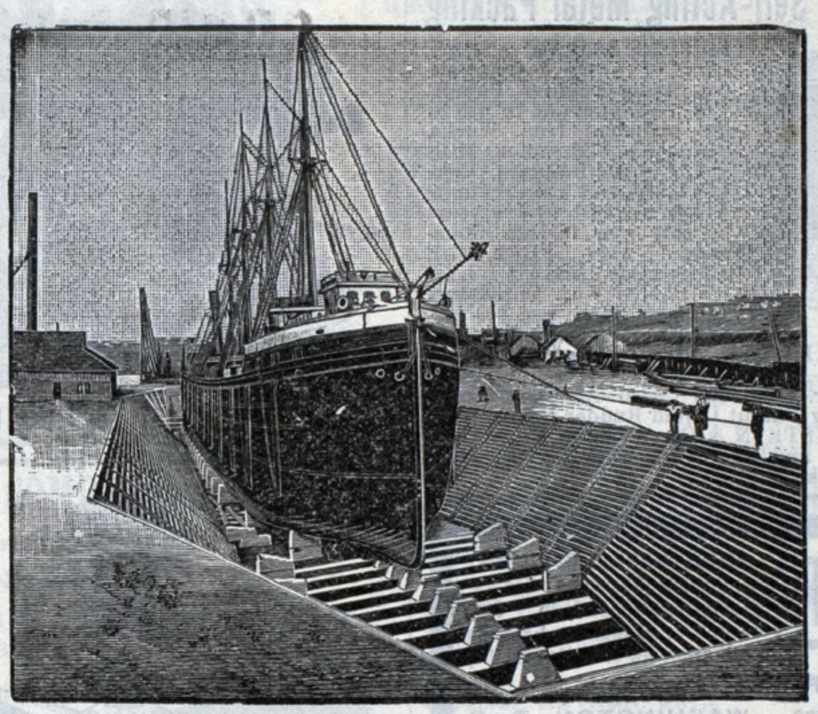

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